

## **REMARKS**

### **Summary**

Claims 1-23 were pending, and all of the Claims were rejected in the Office action. The Applicants respectfully traverse the rejection of the claims, as set forth below.

### **Rejections**

#### **Declaration**

The unsigned declaration referred to by the Examiner was not formally submitted. The Applicants filed an application data sheet on June 15, 2006 under 37 CFR §1.76, wherein priority to the foreign applications was asserted.

37 CFR § 1.68 (a) (3) provides that an oath or declaration may be corrected by an application data sheet in accordance with 37 CFR §1.76, where the deficiency or inaccuracy is in failing to meet the requirements of 37 CFR §1.63 (c). In particular, the aspect of a declaration relating to claiming of foreign priority is found in 37 CFR §1.63 (c) (2), and thus the submitted application data sheet obviates the need for a supplemental oath or declaration. The Applicants respectfully request that the rejection be withdrawn.

A copy of the original signed declaration, the Application Data Sheet (ADS) submitted to claim foreign priority, and a copy of the power of attorney (POA) as downloaded from PAIR are appended hereto. The Applicants call attention to the situation that the POA is not separately shown in PAIR, but is included with the declaration

Should a supplementary declaration be needed after a Notice of Allowance has issued, the Applicants undertake to provide such a paper.

#### **Terminal Disclaimer**

The Applicants express appreciation to the Examiner for calling attention to the error in the patent number referred to in the Terminal Disclaimer. However, the Applicants respectfully traverse the rejection of the paper on the basis that the signatory was not an authorized person. As evidenced by the Power of Attorney appended hereto

and received by the USPTO on September 7, 2004, the signatory of the Terminal Disclaimer is an attorney of record in this matter.

A corrected terminal disclaimer is appended. The Consent of the Assignees under 37 CFR §3.73, dated June 12, 2006, has previously been filed, and the terminal disclaimer fee paid.

### **Claim Rejections**

#### **35 U.S.C. § 102**

Claims 1, 6-7 and 10 were rejected under 35 U.S.C. § 102(b) as being anticipated by Kagatsume et al. (US 4,908,095; "Kagatsume"). The Applicants respectfully traverse this rejection, on the basis that a *prima facie* case of anticipation has not been made out.

The Examiner asserts that "the side wall of the chamber [12] and the susceptor electrode [20] are AC shorted to each other by conductive metal element 27. (see, for example, fig. 5, and its description)" (Office action, page 3)

The Applicants respectfully submit that Kagatsume describes element 27 as a bellows, made from stainless steel and disposed so as to exclude dust. (Kagatsume, col. 5, lines 52-57) The surface of the bellows 27 is seen in Fig. 5 to have a corrugated surface. It is known to persons of skill in the art, that a corrugated surface has a higher electrical inductance than a straight section, and that therefore element 27 does not represent an AC short circuit as, at any frequency, element 27 has a higher impedance than a straight section.

As such, not all of the elements and limitations of the Claim 1 are present in the reference, and a *prima facie* case of anticipation has not been made out; Claim 1 is allowable. Claims 6-10, 13-14, 17-19 and 23 are allowable either as claims dependent on an allowable base claim, or reciting similar subject matter.

#### **35 U.S.C. § 103(a)**

Claims 2-5 were rejected under 35 U.S.C. § 103(a) as being obvious over Kagatsume.

Since a secondary reference is not used in making the obviousness rejection, there is nothing in the reference that rectifies the deficiencies in the anticipation rejection.

Claims 2-5 are claims dependent on an allowable base claim and are allowable, without more.

Claims 8, 13, and 22- 23 were rejected under 35 U.S.C. § 103(a) as being obvious over Kagatsume in view of the Admitted Prior Art (APA).

Claim 8 is dependent on allowable Claim 1 and is allowable, without more.

Claim 13 recites, *inter alia*, the chamber wall of the chamber and at least one of the susceptor electrode and the electrode shield are AC shorted to each other. As argued with respect to Claim 1, above, the Kagatsume does not show an AC short. As such, not all of the elements and limitations of the present Claim 13 are found in the combination of the references, and a *prima facie* case of obviousness has not been made out. Claim 13 is therefore allowable.

Claim 22 is dependent on allowable Claim 13 and is allowable, without more.

Claim 23 is said to be rejected over the same references, but the references are not explicitly applied. As Claim 23 is an independent claim, the Applicants would have expected that the references would have been explicitly applied, and have concluded that the mention of Claim 23 here is a typographical error.

Claims 9, 11-12, 14-21 and 23 were rejected under 35 U.S.C. § 103(a) as being obvious over Kagatsume in view of the Admitted Prior Art (APA) as applied to Claims 8, 13, and 22-23 above and further in view of Kawakami et al. (JP 06-333879; "Kawakami").

Claim 9 is dependent on allowable Claim 1 and is allowable, without more.

With respect to Claim 11, the Office action accepts that Kagatsume and the asserted APA does not disclose that "the chamber wall of the chamber and the susceptor electrode shield are AC shorted to each other." (Office action, page 6). Kawakami is asserted to disclose "a generally planar shaped shield 12 disposed adjacent to the electrode portion; and wherein the bottom wall of the plasma chamber and the susceptor electrode and shield are AC shorted to each other by a conductive element 14 at a plurality of short points of the chamber wall which are disposed

approximately symmetrically with respect to a center of the shield of the susceptor electrode.” (Id, page 6). (Emphasis added)

Claim 11 recites, *inter alia*, a susceptor electrode comprising a generally planar shaped electrode portion oriented substantially parallel to the bottom wall of the plasma chamber.

The Applicants respectfully traverse the characterization of element 12 in FIG. 1 of the reference as having a planar shape. FIG. 1 is a cross sectional view of the disclosed apparatus and element 12 has a cup-like shape cross section. Such a cross sectional shape is properly described as being concave in shape and not, as characterized in the Office action as a planar cross sectional shape. The reference, at para [0010], describes the lower electrode 8 as being supported by element 12 and being insulated therefrom by an insulating member 10.

Element 14 is described in the Office action as a conductive element providing the AC short between element 12 and the bottom wall of the chamber. (For the purposes of this response, the bottom wall is considered to be the inner surface of element 4.). At para [0012], the reference describes element 14 as a bellows made of stainless steel. The purpose of this bellows is to maintain the air-tight integrity of the processing chamber while permitting motion of element 12 in the vertical direction.

The surface of the bellows 14 is seen in FIG. 1 to have a corrugated surface. It is known to persons of skill in the art, that a corrugated surface has a higher electrical inductance than a straight section, and that therefore element 14 cannot have been intended as an AC short. A person of ordinary skill in the art would be aware of this disadvantage and not be motivated to use such a structure as an AC short.

Since there is not motivation to combine all of the elements identified by the Office action, a *prima facie* case of obviousness cannot be made out, and Claim 11 is allowable.

Independent claim 12 recites, *inter alia*, the side wall of the plasma chamber and the shield of the susceptor electrode are AC shorted to each other.

The Applicants respectfully submit that the applied references are not asserted to show, and do not show, the shield of the susceptor electrode shorted to the side wall. Further if the element 14, a corrugated bellows, used as a pass through for the rod 20

was connected to the side wall, such a device would be incapable of vertical motion and be inoperative. For at least these reasons, Claim 12 is not obvious and is allowable.

With respect to Claim 14, which is dependent on independent Claim 13, nothing in the rejection of Claim 14 is cited to overcome the traverse of the rejection of Claim 13, and thus Claim 14 is allowable as a dependent claim, as are Claims 14-21.

Claims 1-23 were rejected under 35 U.S.C. § 103(a) as being obvious over the Admitted Prior Art (APA), in view of Kawakami, Sakai et al. (JP 10-032171;"Sakai"), or Kagatsume. The Office action appears to apply the claims in the alternative and is therefore ambiguous and improper. Each reference ought to have been applied explicitly so that the combination of the references asserted is clear in the public record. In an effort to expedite the consideration of this application which, as a re-issue application, is considered to be "Special", the Applicants have made a best effort to present a traverse of the rejection.

The APA is acknowledged in the Office action as not having "expressly disclose[d] that the chamber wall of the chamber and the susceptor electrode/shield are AC shorted to each other." (Office action, page 8) Kawakami is applied here in the same manner as the same reference was applied to the rejection of Claim 9 *supra*, and is again traversed for the same reasons.

Sakai is said to "additionally...disclose[ ] plasma treatment .wherein the bottom wall of the plasma chamber and the susceptor electrode are AC shorted to each other by a conductive element 12...." (Office action, page 9) However, the reference indicates that reference numeral 12 is an inductance LC, whose inductance value is selected to control a parallel resonance frequency of the device (Sakai, para [0071]). Since a specific value of LC is needed to achieve the results of Sakai, the reference numeral element 12 must have a selected finite inductance value and a corresponding impedance at the operating frequency. This is not the characteristic of a shorting conductor. Hence, not all of the elements and limitations of Claim 1 are found in the combination of the references and a *prima facie* case of obviousness has not been made out. Moreover, there is nothing to suggest that a person of ordinary skill in the art would consider using LC as a shorting element, and there is no motivation to combine the references.

With respect to Claims 2-5, 11-12, 15-16 and 20-22, the Office action accepts the references do not disclose that the susceptor electrode and the chamber wall are shorted at a distance of less than 500mm from a side wall of the chamber, that the shorting is performed by an metal plate, and an angle formed between the metal plate and the bottom wall is less than 45 degrees.

The Office action makes a conclusory statement that none of these limitations are anything but a choice that a person of ordinary skill in the art would make. The reasons given appear to be a paraphrase one or more court decisions. So as to properly understand the context in which the decisions were rendered, the Examiner is respectfully requested to cite to the relevant authorities if the rejection on these ground are maintained in a subsequent Office action.

Claims 2-5, 11-12, 15-16 and 20-22 are claims dependent on allowable claims and are allowable, without more. Claims 7-10, 13-14, 17-19, and 23 are not specifically rejected here, and no traverse is therefore believed to be necessary. However, in view of the foregoing traverses, the Applicants respectfully submit that the claims contain patentable subject matter or are claims dependent on allowable base claims.

**Conclusion**

Claims 1-23 are pending. For at least the reasons given above, the Applicants respectfully submit that the pending claims are allowable, or would be allowable if a terminal disclaimer were to be submitted.

The Examiner is respectfully requested to contact the undersigned in the event that a telephone interview would expedite consideration of the application.

Respectfully submitted,

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